

Amendments to the Specification:

Please amend the Specification at paragraph [0024] at page 6 as follows:

[0024] Figs. 2(a) and 2(b) are simplified schematic cross-section views of one embodiment of the invention. The embodiment illustrated in Fig. 2(a) depicts a portion of a typical implementation of a semiconductor package 200 constructed in accordance with the principles of the invention. Such embodiments can be used to form strong multilayer thermal transfer structures that have thin layers of solder or other thermally conductive reflow materials and thereby operate [[a]] as an efficient heat transfer media. In the depicted structure, a semiconductor die 102 is mounted with a packaging substrate 101. Typically, the semiconductor die 102 is attached to a packaging substrate 101 using solder bumps 104 are subject to a reflow process to physically attach and electrically connect the die 102 with the substrate 101. Additionally, the die 102 can be further secured to the substrate 101 by underfilling the die 102 with an encapsulant material 103.

Please amend the Specification at paragraph [0027] line 15, at page 7 as follows:

[0027] Fig. 2(b) is a closer view of the embodiment of the multi-layer heat transfer element 201 depicted in Fig. 2(a). The multi-layer heat transfer element 201 includes a first layer 201 of reflowable conducting material arranged on a top surface of a plate or layer of core 203 material. The multi-layer heat transfer element 201 also includes a second layer 203 of reflowable conducting material arranged on a bottom surface of the core 203 material. The core 203 can be conducting or non-conducting depending on the implementation. Details of a number of embodiments will be discussed in detail hereinbelow. As used herein, reflowable materials are those materials, that when subjected to the right temperature, undergo a controllable liquefaction that allows the material to flow in a more liquefied state. Common examples include, but are not limited to, solder materials or metals which flow at relatively low process temperatures. In the present invention, such reflowable materials should also be conducting materials. Again, solder materials or metals which flow at relatively low process temperatures are particularly well suited to the principles of the invention. Specific examples include, but are not limited to, lead-free alloy solders (e.g, SiTi (silicon titanium containing solders), AgCu (silver copper containing solders), SnAg (tin silver containing solders), SnBi (tin bismuth containing solders), as well as many others); lead containing solders, or even Sn or Ag solders. The inventors specifically point out that the above listed solders and metals are examples only. The invention is intended to cover the entire range of solder materials available to one of ordinary skill in the art. Additionally, the inventors contemplate that different solder materials can be used in each layer (202, 204). In one embodiment, a first solder layer 202 can be selected

of a material that has good bonding adhesion to the materials of the heat spreader 110. Also, the second solder layer 204 can be selected of a material that has good bonding adhesion to the materials forming the contact portion of the die 102.

Please amend the Specification at paragraph [0032], on line 13, at page 10 as follows:

[0032] In some alternative embodiments, a core can be constructed having a plurality of depressions in the surface or constructed having a plurality of holes (vias) that penetrate through the surfaces of the core. Examples of such embodiments are depicted in the simplified schematic depicts on of Figs. 3(b) and 3(c). In Fig. 3(b), a thermally conductive core 303' is depicted having depressions (dimples) 305 in the surfaces T, B. In some embodiments, the presence of such dimples 305 can prevent excess solder (or other thermally conductive reflowable material) from overflowing and being squeezed out of the sides during assembly processes. In Fig. 3(c), a thermally conductive core 303" is depicted having vias 306 that penetrate through the core 303" and have openings in both surfaces of the core 303". In some embodiments, the presence of such vias 306 can prevent excess solder (or other thermally conductive reflowable material) from overflowing and being squeezed out of the sides during assembly processes. Also, in other embodiments, a thermally conductive reflowable material (e.g., solder) having a higher thermal [[ly]] conductivity than the core 303" material can be used. Thus, when one such layer of the thermally conductive reflowable material is reflowed into the vias it can physically (and thermally) contact the thermally conductive reflowable material of the layer on the other side of the core 303" to enhance the overall thermal conductivity of the structure. The inventors specifically point out that the depicted embodiments are merely illustrative of the more general principles of the invention and are not intended to limit the scope of the invention. Particularly, the invention is not to be construed as being confined to the depicted embodiments.